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Specimens examined: California (Thos. Coulter 647, Hartweg 1935, Kellogg & Harford 928, Brewer 1564), San Francisco Bay (Wilkes' Exped. 1490), Berkely (Greene); Oregon, Curry county, Chetco (Howell), "Columbia and southward" (Douglas).

Crawfordsville, Ind,

BRIEFER ARTICLES.

Glandular pubescence in *Aster patens*.—While studying the involucre bracts of some of our *Asters* I found a specimen of *A. patens* which differed from the description in that the bracts of the involucre were apparently glandular pubescent. This led to a further examination of this species and incidentally others that were described as being glandular pubescent.

The earlier authors, in their descriptions of *Asters*, do not mention glandular hairs, even when they are so evident as in the very common, *A. Novæ-Angliæ*. I have not been able to find any description of *A. patens* in which it is credited with glandular pubescence. Aiton, who first described it (Hort. Kew.), followed by Pursh and Michaux (*A. amplexicaulis*), does not speak of any kind of pubescence on the bracts. Elliott (*A. undulatus*) says, "involucre pubescent;" Darlington (Fl. Cest.), "involucre minutely scabrous;" Nees (*Ast.*), "periclinii * * foliolis * * scabris;" Torrey (Nat. His. N. Y.), "scales minutely pubescent or hairy and somewhat granulate." It is described by other authors in about the same way.

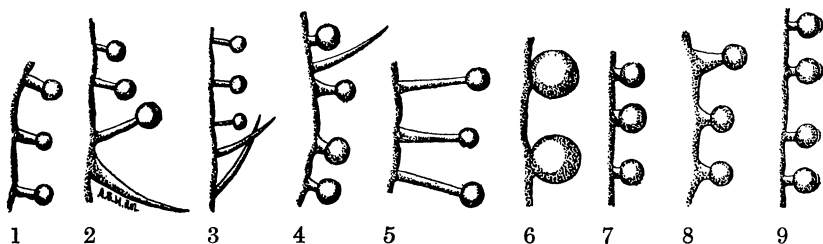
In the case of *A. patens* Ait. var. *phlogifolius* Nees, I find no mention of glandular pubescence except under *A. auritus* (Lindl. in DC. Prod.) which Dr. Gray refers to this variety. It is described, " * * * involucri parum imbricati, squamis linearibus acuminatis ramulusque glandulosus."

In the latest revision of our *Asters* (Gray, Syn. Fl.) several species are described as being glandular. Subsection 2, of *Aster* proper—*Glandulosi*—consisting of eight species, is set off by, "Involucre and usually branchlets viscidly or pruinose-glandular * * * " Among the characters of subsection 6—*Patentes*—consisting of *A. patens* Ait. with two varieties, *gracilis* Hook. and *phlogifolius* Nees, is "bracts * * * minutely granulose or scabrous, but not glandular." In order to guard against mistakes, it is remarked in parenthesis, under *Glandulosi*, "Glandular involucre also in species of *§ Machæranthera*," and in connection with *A. pauciflorus*, "involucre * * * viscid-glandular * * * might be sought among the *Glandulosi* of true *Aster*." Glandular pubescence occurs in several other species, but in none is it a prominent character. But the finding of glandular hairs in *A. patens* might be misleading to a student.

In order to determine to what extent this kind of pubescence occurred in *Patentes*, all the specimens available were examined. In those from St. Louis the bracts are to the naked eye somewhat silky pubescent; under the microscope they are densely appressed villous, in some cases showing only here and there a gland tipped hair, in others being quite glandular. But in all the other specimens, representing La., Tex., S. C. and Pa., the glandular hairs are numerous and distinct, while the pointed hairs are fewer, thus causing the involucre to appear to the naked eye or under a low power lens as "granulose" or "minutely scabrous."

Specimens of *A. patens* var. *gracilis* (Texas, Lindheimer) and var. *phlogifolius* (Ky., Short) show the glandular pubescence very distinctly, as do specimens of the same from other localities.

In size, shape and general appearance the glandular hairs are very similar to those of *A. oblongifolius* Nutt. The pedicels are one to three times as long as the glands, rather slender and not much widened at the base; the glands are yellow, more or less roughened and viscid, as shown by the adherence of particles of dirt. The whole hair is about half as long as the intermixed pointed ones. They are more numerous towards the tip and margin of the bract, and were observed only sparingly on the pedicels.



GLANDULAR HAIRS OF ASTERS. x 66.

1. *A. patens* Ait.; 2. *A. patens* Ait., var. *phlogifolius* Nees; 3. *A. patens* Ait., var. *gracilis* Hook.; 4. *A. oblongifolius* Nutt.; 5. *A. gymnocephalus* Gray; 6. *A. tanacetifolius* H. B. K.; 7. *A. parviflorus* Gray; 8. *A. grandiflorus* L.; 9. *A. Novæ-Angliæ* L. (from Iowa).

The accompanying drawings were made from heads obtained, through the kindness of Dr. Watson, from specimens at Cambridge, named by Dr. Gray.—A. A. HITCHCOCK, *Missouri Botanical Garden, St. Louis.*